



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,977	10/02/2003	Jack Nguyen	19049-005001 / 4905	9061
<div>20985      7590      10/16/2007</div> <div>FISH &amp; RICHARDSON, PC</div> <div>P.O. BOX 1022</div> <div>MINNEAPOLIS, MN 55440-1022</div>				
			<div>EXAMINER</div> <div>WESSENDORF, TERESA D</div>	
			<div>ART UNIT</div> <div>1639</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE</div> <div>10/16/2007</div>	<div>DELIVERY MODE</div> <div>PAPER</div>

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**UNITED STATES DEPARTMENT OF COMMERCE****U.S. Patent and Trademark Office**

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10677977	10/2/2003	NGUYEN ET AL.	19049-005001 / 4905

FISH & RICHARDSON, PC  
P.O. BOX 1022  
MINNEAPOLIS, MN 55440-1022

**EXAMINER**

T. D. Wessendorf

ART UNIT	PAPER
----------	-------

1639 5

DATE MAILED:

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner for Patents**

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) set forth below or on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures. See attached errors in sequence listing.

Applicant is given ONE MONTH, or THIRTY DAYS, whichever is longer, from the mailing date of this letter within which to comply with the sequence rules, 37 CFR 1.821 - 1.825. Failure to comply with these requirements will result in ABANDONMENT of the application under 37 CFR 1.821(g). Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a). In no case may an applicant extend the period for reply beyond the SIX MONTH statutory period. Direct the reply to the undersigned. Applicant is requested to return a copy of the attached Notice to Comply with the reply. Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. D. Wessendorf whose telephone number is (571) 272-0812. The examiner can normally be reached on Flexitime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Schultz can be reached on 571 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

T. D. Wessendorf  
Primary Examiner  
Art Unit: 1639

10/15/07

10/677,977

=====  
Sequence Listing could not be accepted due to errors.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)  
217-9197 (toll free).

Reviewer: Anne Corrigan

Timestamp: Wed Sep 05 15:35:32 EDT 2007  
=====

\*\*\*\*\*

Reviewer Comments:

<210> 6

<211> 6

<212> PRT

<213> Homo sapiens

<220>

<221> Variant

<222> (1)..(1)

<223> Wherein Xaa is an N-acetyl group.

<220>

<221> Variant

<222> (6)..(6)

<223> Wherein Xaa is a 7-amino-4-methylcoumarin group.

<400> 6

Xaa Ile Glu Pro Asp Xaa

1

5

The above explanations for Xaa are invalid: "Xaa" can only represent a  
single amino acid, not a functional group.

<210> 29

<211> 4

<212> PRT

<213> Homo sapiens

<220>  
<223> Chymotrypsin substrate specificity

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Val or Pro

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa= Phe ot Tyr

<400> 29  
Xaa Xaa Xaa Xaa  
1

The above <223> explanation for "Xaa" at location 4 contains a misspelling: please replace "ot" with "or."

<210> 54  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Cathepsin F substrate spec.

<220>

<221> VARIANT  
<222> 1  
<223> Xaa=any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa=any amino acid

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa=Lys or Arg

<400> 54  
Xaa Xaa Leu Xaa  
1

The above "<222> 3" is an incorrect location for "Xaa:" "Leu" is at location 3; "Xaa" is at location 2.

\*\*\*\*\*

Application No: 10677977

Version No: 4.0

Input Set:

Output Set:

Started: 2007-08-23 14:48:11.063

Finished: 2007-08-23 14:48:11.915

Elapsed: 0 hr(s) 0 min(s) 0 sec(s) 852 ms

Total Warnings: 3

Total Errors: 3

No. of SeqIDs Defined: 57

Actual SeqID Count: 57

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (22)
E 257	Invalid sequence data feature in <221> in SEQ ID (22)
E 257	Invalid sequence data feature in <221> in SEQ ID (22)
E 341	'Xaa' position not defined SEQID (54) POS (2)

# SEQUENCE LISTING

<110> Nguyen, Jack  
 Thanos, Chris  
 Waugh Ruggles, Sandra  
 Craik, Charles S.

<120> METHODS OF GENERATING AND SCREENING FOR PROTEASES WITH ALTERED  
 SPECIFICITY

<130> 19049-005001/4905

<140> 10677977

<141> 2003-10-02

<150> 60/425,388

<151> 2002-10-02

<160> 57

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 277

<212> PRT

<213> Homo sapiens

<400> 1

Met Glu Asn Thr Glu Asn Ser Val Asp Ser Lys Ser Ile Lys Asn Leu  
 1 5 10 15

Glu Pro Lys Ile Ile His Gly Ser Glu Ser Met Asp Ser Gly Ile Ser  
 20 25 30

Leu Asp Asn Ser Tyr Lys Met Asp Tyr Pro Glu Met Gly Leu Cys Ile  
 35 40 45

Ile Ile Asn Asn Lys Asn Phe His Lys Ser Thr Gly Met Thr Ser Arg  
 50 55 60

Ser Gly Thr Asp Val Asp Ala Ala Asn Leu Arg Glu Thr Phe Arg Asn  
 65 70 75 80

Leu Lys Tyr Glu Val Arg Asn Lys Asn Asp Leu Thr Arg Glu Glu Ile  
 85 90 95

Val Glu Leu Met Arg Asp Val Ser Lys Glu Asp His Ser Lys Arg Ser  
 100 105 110

Ser Phe Val Cys Val Leu Leu Ser His Gly Glu Glu Gly Ile Ile Phe  
115 120 125

Gly Thr Asn Gly Pro Val Asp Leu Lys Lys Ile Thr Asn Phe Phe Arg  
130 135 140

Gly Asp Arg Cys Arg Ser Leu Thr Gly Lys Pro Lys Leu Phe Ile Ile  
145 150 155 160

Gln Ala Cys Arg Gly Thr Glu Leu Asp Cys Gly Ile Glu Thr Asp Ser  
165 170 175

Gly Val Asp Asp Asp Met Ala Cys His Lys Ile Pro Val Asp Ala Asp  
180 185 190

Phe Leu Tyr Ala Tyr Ser Thr Ala Pro Gly Tyr Tyr Ser Trp Arg Asn  
195 200 205

Ser Lys Asp Gly Ser Trp Phe Ile Gln Ser Leu Cys Ala Met Leu Lys  
210 215 220

Gln Tyr Ala Asp Lys Leu Glu Phe Met His Ile Leu Thr Arg Val Asn  
225 230 235 240

Arg Lys Val Ala Thr Glu Phe Glu Ser Phe Ser Phe Asp Ala Thr Phe  
245 250 255

His Ala Lys Lys Gln Ile Pro Cys Ile Val Ser Met Leu Thr Lys Glu  
260 265 270

Leu Tyr Phe Tyr His  
275

<210> 2  
<211> 6  
<212> PRT  
<213> Homo sapiens

<400> 2

Phe Ser Phe Asp Ala Thr  
1 5

<210> 3



<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Granzyme B Mutation Forward Primer

<400> 3  
ccagcgata attctaagac agcctccaat gacatcatgc tg 42

<210> 4  
<211> 6  
<212> PRT  
<213> Homo sapiens

<400> 4

Ile Glu Thr Asp Ser Gly  
1 5

<210> 5  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Granzyme B Mutation Reverse Primer

<400> 5  
cagcatgatg tcattggagg ctgtcttaga attatacgt gg 42

<210> 6  
<211> 6  
<212> PRT  
<213> Homo sapiens

<220>  
<221> Variant  
<222> (1)..(1)  
<223> Wherein Xaa is an N-acetyl group.

<220>  
<221> Variant  
<222> (6)..(6)  
<223> Wherein Xaa is a 7-amino-4-methylcoumarin group.

<400> 6

Xaa Ile Glu Pro Asp Xaa  
1 5

<210> 7

<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 7

Ala Glu Ala Lys  
1

<210> 8  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 8

Glu Asn Val Lys  
1

<210> 9  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 9

Gly Thr Glu Asp  
1

<210> 10  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 10

Ser Pro Thr Arg  
1

<210> 11  
<211> 4  
<212> PRT  
<213> Homo sapiens

<400> 11

Val Ser Thr Arg  
1

<210> 12  
<211> 4  
<212> PRT

<213> Homo sapiens

<400> 12

Ser Thr Ser Phe

1

<210> 13

<211> 4

<212> PRT

<213> Homo sapiens

<400> 13

Lys Phe Pro Asp

1

<210> 14

<211> 4

<212> PRT

<213> Homo sapiens

<400> 14

Ala Glu Gln Arg

1

<210> 15

<211> 4

<212> PRT

<213> Homo sapiens

<400> 15

Lys Tyr Ala Asp

1

<210> 16

<211> 4

<212> PRT

<213> Homo sapiens

<400> 16

Asn Gly Pro Lys

1

<210> 17

<211> 4

<212> PRT

<213> Homo sapiens

<400> 17

Ser Ser Ala Tyr

1

<210> 18

<211> 4

<212> PRT

<213> Homo sapiens

<400> 18

Gly Thr Ser Asp

1

<210> 19

<211> 4

<212> PRT

<213> Homo sapiens

<400> 19

Ala Gln Glu Lys

1

<210> 20

<211> 4

<212> PRT

<213> Homo sapiens

<400> 20

Arg Ile Asp Tyr

1

<210> 21

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> IEPD

<400> 21

Ile Glu Pro Asp

1

<210> 22

<211> 4

<212> PRT

<213> Artificial Sequence

<220>  
<223> Ac-DEVD-AMC fluorogenic substrate

<220>  
<221> MOD\_RES  
<222> 1  
<223> N-acetyl

<220>  
<221> MOD\_RES  
<222> 4  
<223> AMC

<400> 22  
Asp Glu Val Asp  
1

<210> 23  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> granzyme B substrate specificity

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Leu

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa = any amino acid

<400> 23  
Xaa Glu Xaa Asp  
1

<210> 24  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Granzyme A substrate specificity

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 2

<223> Xaa= Ala or Gly

<220>

<221> VARIANT

<222> 3

<223> Xaa= Asn, Asp or Glu

<400> 24

Xaa Xaa Xaa Arg

1

<210> 25

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Cathepsin G substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 3

<223> Xaa= Val or Leu

<220>

<221> VARIANT

<222> 4

<223> Xaa= Phe or Lys

<400> 25

Xaa Xaa Xaa Xaa

1

<210> 26

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> MTSP-1 substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= Arg or any hydrophobic amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Arg or any hydrophobic amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Ser or Thr

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa= Arg or Lys

<400> 26  
Xaa Xaa Xaa Xaa  
1

<210> 27  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Neutrophil Elastase substrate specificity

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Arg, Met or Lys

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Gln or Glu

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Pro or Ala

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa= Val, Ala or Ile

<400> 27  
Xaa Xaa Xaa Xaa  
1

<210> 28  
<211> 4  
<212> PRT

<213> Homo, sapiens

<220>

<223> Chymase substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa= Glu or Ala

<220>

<221> VARIANT

<222> 3

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 4

<223> Xaa= Phe or Tyr

<400> 28

Xaa Xaa Xaa Xaa

1

<210> 29

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Chymotrypsin substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 3

<223> Xaa= Val or Pro

<220>

<221> VARIANT

<222> 4

<223> Xaa= Phe or Tyr



<400> 29

Xaa Xaa Xaa Xaa

1

<210> 30

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Ester substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa = Ile or Val

<220>

<221> VARIANT

<222> 2

<223> Xaa = Glu or Ala

<220>

<221> VARIANT

<222> 3

<223> Xaa = Val or Leu

<400> 30

Xaa Xaa Xaa Arg

1

<210> 31

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Factor Xa substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa= any amino acid

<400> 31

Xaa Xaa Gly Arg

1

<210> 32  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Plasma Kallikrein substrate specificity

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= any hydrophobic amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Phe or Tyr

<400> 32  
Xaa Xaa Xaa Arg  
1

<210> 33  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Plasmin substarte specificity

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Trp or Phe

<400> 33  
Lys Xaa Xaa Lys  
1

<210> 34  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>

<223> Thrombin substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= Phe or Leu

<220>

<221> VARIANT

<222> 2

<223> Xaa= any amino acid

<400> 34

Xaa Xaa Pro Arg

1

<210> 35

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> tPA substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa= Thr or Ser

<220>

<221> VARIANT

<222> 3

<223> Xaa=Gly or Ser

<400> 35

Xaa Xaa Xaa Arg

1

<210> 36

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> uPA substrate specificity

<220>

<221> VARIANT

<222> 1

<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Thr or Ser

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Ser or Ala

<400> 36  
Xaa Xaa Xaa Arg  
1

<210> 37  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> 199F granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa = any amino acid

<400> 37  
Xaa Glu Xaa Asp  
1

<210> 38  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> 199A granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<400> 38  
Xaa Glu Phe Asp  
1

<210> 39  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> I99K granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= any amino acid

<400> 39  
Xaa Glu Xaa Asp  
1

<210> 40  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> N218A granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= any amino acid

<400> 40  
Xaa Xaa Xaa Asp  
1

<210> 41  
<211> 4  
<212> PRT

<213> Homo sapiens

<220>

<223> N218T granzyme B substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa= Ile or val

<220>

<221> VARIANT

<222> 2

<223> Xaa= Ala or Ser

<220>

<221> VARIANT

<222> 3

<223> Xaa= any amino acid

<400> 41

Xaa Xaa Xaa Asp

1

<210> 42

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> N218V granzyme B substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=Ile or Val

<220>

<221> VARIANT

<222> 2

<223> Xaa=any amino acid

<220>

<221> VARIANT

<222> 3

<223> Xaa=any amino acid

<400> 42

Xaa Xaa Xaa Asp

1

<210> 43

<211> 4

<212> PRT  
<213> Homo sapiens

<220>  
<223> R192A granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= any amino acid

<400> 43  
Xaa Glu Xaa Asp  
1

<210> 44  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> R192E granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Lys, Gln or Ser

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa=any amino acid

<400> 44  
Xaa Xaa Xaa Asp  
1

<210> 45  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>

<223> Y174A granzyme B substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa= Ile Val or Leu

<220>

<221> VARIANT

<222> 3

<223> Xaa= any amino acid

<400> 45

Xaa Glu Xaa Asp

1

<210> 46

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Y174V granzyme B substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=Ile or Val

<220>

<221> VARIANT

<222> 3

<223> Xaa=any amino acid

<400> 46

Xaa Glu Xaa Asp

1

<210> 47

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> I99A/N218A granzyme B substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=Phe, Leu, Ile or Val

<220>



<221> VARIANT  
<222> 2  
<223> Xaa= Ala or ser

<400> 47  
Xaa Xaa Phe Asp  
1

<210> 48  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> R192A/N218A granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Ala, Gln or Ser

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= any amino acid

<400> 48  
Xaa Xaa Xaa Asp  
1

<210> 49  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> R192E/N218A granzyme B substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= Ile or Val

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Arg, Lys or Ala

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= any amino acid

<400> 49  
Xaa Xaa Xaa Asp  
1

<210> 50  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Cathepsin G substrate specificity

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa=any amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa=any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa=Phe or Trp

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa=Arg or Lys

<400> 50  
Xaa Xaa Xaa Xaa  
1

<210> 51  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Cathepsin V substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa= any amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa= Pro or any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa= Trp, Tyr or Phe

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa= any amino acid

<400> 51  
Xaa Xaa Xaa Xaa  
1

<210> 52  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Cathepsin K substrate spec.

<220>  
<221> VARIANT  
<222> 1  
<223> Xaa=any amino acid

<220>  
<221> VARIANT  
<222> 2  
<223> Xaa=any amino acid

<220>  
<221> VARIANT  
<222> 3  
<223> Xaa=Leu or Pro

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa=Arg or Lys

<400> 52  
Xaa Xaa Xaa Xaa  
1

<210> 53  
<211> 4  
<212> PRT

<213> Homo sapiens

<220>

<223> Cathepsin S substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa=Arg or any amino acid

<220>

<221> VARIANT

<222> 3

<223> Xaa=Val, Leu or Met

<220>

<221> VARIANT

<222> 4

<223> Xaa=Lys or Arg

<400> 53

Xaa Xaa Xaa Xaa

1

<210> 54

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Cathepsin F substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=any amino acid

<220>

<221> VARIANT

<222> 3

<223> Xaa=any amino acid

<220>

<221> VARIANT

<222> 4

<223> Xaa=Lys or Arg

<400> 54

Xaa Xaa Leu Xaa

1

<210> 55

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Cathepsin B substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa=Pro or any amino acid

<220>

<221> VARIANT

<222> 3

<223> Xaa=Val, Phe or Tyr

<220>

<221> VARIANT

<222> 4

<223> Xaa=Arg or Lys

<400> 55

Xaa Xaa Xaa Xaa

1

<210> 56

<211> 4

<212> PRT

<213> Homo sapiens

<220>

<223> Papain substrate spec.

<220>

<221> VARIANT

<222> 1

<223> Xaa=any amino acid

<220>

<221> VARIANT

<222> 2

<223> Xaa=Pro or any amino acid

<220>

<221> VARIANT  
<222> 3  
<223> Xaa=Val, Phe or Tyr

<220>  
<221> VARIANT  
<222> 4  
<223> Xaa=Arg or Lys

<400> 56  
Xaa Xaa Xaa Xaa  
1

<210> 57  
<211> 4  
<212> PRT  
<213> Homo sapiens

<220>  
<223> Cruzain substrate spec.

<